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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,812	09/07/2001	Lan-Qing Huang	L0461.70115US00	3475

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EXAMINER	
DAVIS, MINH TAM B	
ART UNIT	**PAPER NUMBER**
1642	
MAIL DATE	**DELIVERY MODE**
06/14/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/856,812	HUANG ET AL.	
	Examiner	Art Unit	
	MINH-TAM DAVIS	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,5,9-11 and 42-54* is/are pending in the application.

4a) Of the above claim(s) *10 and 51* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2, 4-5, 9, 11, 42-50, 52-54* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/02/07 has been entered.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Accordingly, claims 1-2, 4-5, 9, 11, 42-50, 52-54, SEQ ID NO:42, or a nonapeptide comprising an unbroken sequence of SEQ ID NO:1, wherein the amino acid adjacent to the N-terminal amino acid is L and the N-terminal amino acid is L, or I are being examined.

Withdrawn Rejection

After review and reconsideration, the 112, first paragraph, written description of claims 1-2, 11, 44-50, 52-54, and the objection of claims 1-2, 44-50, 52-54 were withdrawn.

Claim Rejections - 35 USC § 112, First Paragraph, Enablement

Claims 1-2, 4-5, 9, 11, 42-50, 52-54 remain rejected under 112, first paragraph, for lack of enablement for 1) A polypeptide comprising an unbroken sequence of SEQ ID NO:1, that complexes with HLA-A2, or that elicits an immune response, 2) A nonapeptide comprising an unbroken sequence of SEQ ID NO:1, wherein the amino acid adjacent to the N-terminal amino acid is L and the N-terminal amino acid is L, or I, or a polypeptide of up to about 93 amino acids

in length, and comprising said nonapeptide, and 3) A nonapeptide comprising SEQ ID NO:42, for reasons already of record in paper of 11/29/06.

The response asserts that all of the claims are directed to polypeptides that are fragments of MAGE-10, SEQ ID NO: 1. The response asserts that many of the claims are nonapeptides in which the amino acids are specified by virtue of the requirement that they are fragments of SEQ ID NO: 1 and have certain amino acids at the second and last positions. The response asserts that the assertion that cancer diagnosis and treatment is unpredictable is irrelevant to the claimed polypeptides. The response asserts that the claimed peptides could have uses other than the use singled out by the Examiner.

The response has been considered but is not found to be persuasive for the following reasons:

One would not know how to use the claimed genus of peptides of SEQ ID NO:1 that bind to HLA, or that are CTL epitopes, such as for diagnosis or treating diseases associated with SEQ ID NO:1, such as cancer, because of the following reasons:

1) One **cannot predict** that **SEQ ID NO:1** is **adequately expressed on primary cancer cells** as compared to normal control tissue, such that the antibodies or the CTLs produced by the claimed peptide would recognize SEQ ID NO:1 on primary cancer cells, a criteria necessary for diagnosis or treatment of the target cancer cells, in view of the following teaching in the art:.1) De Plaen et al, of record, teach that as detected by PCR, MAGE-10 mRNA expression in various tumors is **very weak**, representing less than 1% of that of highly expressed gene, and 2) the CTL recognition and lysis of melanoma **cell line** as disclosed in Example 5 on page 33 of the instant specification cannot be correlated with expression of MAGE-10 on primary cancer tissue,

because expression of cancer cells in culture is not predictably the same as that of primary cancer cells, due to the well known cell culture artifact (see Drexler et al, Embleton et al, Hsu et al, Tian et al, Van Dyke et al, Zaslav et al, and Kunkel et al, all of record).

2) The **unpredictability of cancer diagnosis and treatment** as taught by White et al, Smith et al, Kirkin et al, all of record.

Further, it is not clear what other use is applicable for the claimed **genus** of MAGE-10 peptides, or nonapeptides, as asserted in the response, besides the contemplation in the specification of making antibodies or CTLs for diagnosis of or treating diseases caused by SEQ ID NO:1, or cancer.

NEW REJECTION BASED ON NEW CONSIDERATION

Claim Rejections - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 44-46, 50-54 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 44-46, 50-54 are indefinite for the use of the language "preferably" in claim 1, because it is not clear whether the claimed narrower molecule type, HLA-A2.1, is a limitation (see MPEP 2173.05(c)). One of ordinary skill in the art would not be reasonably apprised of the scope of the invention and would not be able to determine the metes and bounds of the claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 52-54 are rejected under 35 U.S.C. 102(b) as being anticipated by Townsend et al (WO/9525740-A1).

Claim 1 is drawn to: An isolated polypeptide comprising an unbroken sequence of amino acids from SEQ ID NO: 1 that complexes with a major histocompatibility complex molecule type HLA-A2, preferably HLA-A2.1, wherein the amino acid sequence of said isolated polypeptide is not that set out in either of SEQ ID NOs: 1 and 2, or that coded for by nucleotides 334-918 of SEQ ID NO:7, or GLEGAQAPL (SEQ ID NO:50).

Claim 2 is drawn to: An isolated polypeptide comprising an unbroken sequence of amino acids from SEQ ID NO: 1, that elicits an immune response from human lymphocytes, wherein the amino acid sequence of said isolated polypeptide or protein is not that set out in either of SEQ ID NOs: 1 and 2, or that coded for by nucleotides 334-918 of SEQ ID NO:7, or GLEGAQAPL (SEQ ID NO:50).

Claim 52 is drawn to: The isolated polypeptide of claim 1, wherein the polypeptide elicits an immune response from human lymphocytes.

Claim 53 is drawn to: The isolated polypeptide of claim 52, wherein the polypeptide elicits an immune response from human lymphocytes when complexed with a major histocompatibility complex molecule type HLA-A2.

Claim 54 is drawn to: The isolated polypeptide of claim 52, wherein the immune response is a cytolytic response from human T-lymphocytes.

Townsend et al teach the peptide # 9 or #:11, which is 100% similar to SEQ ID NO:48 and SEQ ID NO:49 of the claimed invention, respectively, as shown by MPSRCH sequence similarity search (MPSRCH search result, 2007, us.09.856.812b.48.rag, pages 1-2., and us.09.856.812.1.oligo-sz9.Rag,result 3, pages 1-2). Townsend et al further teach that the peptide forms a strong complex with HLA-2, and is used as a target for the generation of cytolytic T cell clones (abstract).

It is noted that SEQ ID NO:48 and SEQ ID NO:49 are nonapeptides of SEQ ID NO:1, as shown in claim 50.

Although the reference does not explicitly teach that peptides #9 and 11 are unbroken sequences of amino acids from SEQ ID NO:1, however, the claimed polypeptide appears to be the same as the prior art polypeptide. The office does not have the facilities and resources to provide the factual evidence needed in order to establish that the product of the prior art does not possess the same material, structural and functional characteristics of the claimed product. In the absence of evidence to the contrary, the burden is on the applicant to prove that the claimed product is different from those taught by the prior art and to establish patentable differences. See In re Best 562F.2d 1252, 195 USPQ 430 (CCPA 1977) and Ex parte Gray 10 USPQ 2d 1922 (PTO Bd. Pat. App. & Int. 1989).

MPSRCH search result, 2007, us.09.856.812.1.oligo-sz9.Rag,result 3, pages 1-2.

```
RESULT 3
AAR79847
ID   AAR79847 standard; peptide; 9 AA.
```

XX
AC AAR79847;
XX
DT 08-MAY-1996 (first entry)
XX
DE Tumour rejection antigen peptide #11.
XX
KW Tumour rejection antigen; MAGE tumour rejection precursor;
complex;
KW HLA-2; immunogen; antibody; cytolytic T cell clone.
XX
OS Synthetic.
XX
PN WO9525740-A1.
XX
PD 28-SEP-1995.
XX
PF 22-MAR-1995; 95WO-US003657.
XX
PR 24-MAR-1994; 94US-00217186.
PR 17-JUN-1994; 94US-00261160.
PR 15-AUG-1994; 94US-00290381.
XX
PA (LUDW-) LUDWIG INST CANCER RES.
PA (UYOX-) UNIV OXFORD.
PA (UYLE-) RIJKSUNIV LEIDEN.
XX
PI Townsend A, Bastin J, Boon-Falleur T, Van Der Bruggen P,
Coulie P;
PI Gajewski T, Melief CJ, Visseren MW, Kast WM;
XX
DR WPI; 1995-344584/44.
XX
PT Isolated peptide(s) which complex with HLA-A2 - used as immunogens
for
PT the prodn. of antibodies, or as targets for the generation of
cytolytic T
PT cell clones.
XX
PS Claim 15; Page 23; 44pp; English.
XX
CC The peptides given in AAR79845-47 represent tumour rejection
antigens
CC derived from MAGE tumour rejection precursor. These peptides form
a
CC strong complex with HLA-2 which may be used diagnostically and as
an
CC immunogen in the production of antibodies. They may also be used
as
CC targets for the generation of cytolytic T cell clones. This
cytolytic T
CC cell clone is used to treat a cancerous condition characterised by
the

```
      CC   fact that the cancer cells present the HLA-2/ peptide complex on
their
      CC   surface
      XX
      SQ   Sequence 9 AA;

        Query Match              2.4%;  Score 9;  DB 2;  Length 9;
        Best Local Similarity   100.0%;  Pred. No. 2e+06;
        Matches    9;  Conservative    0;  Mismatches    0;  Indels    0;
Gaps    0;

      Qy        235 FIEGYCTPE 243
                    |||||||||
      Db          1 FIEGYCTPE 9
```

MPSRCH search result, 2007, us.09.856.812b.48.rag, pages 1-2.

```
      RESULT 1
      AAR79845
      ID   AAR79845 standard; peptide; 9 AA.
      XX
      AC   AAR79845;
      XX
      DT   08-MAY-1996  (first entry)
      XX
      DE   Tumour rejection antigen peptide #9.
      XX
      KW   Tumour rejection antigen; MAGE tumour rejection precursor;
complex;
      KW   HLA-2; immunogen; antibody; cytolytic T cell clone.
      XX
      OS   Synthetic.
      XX
      PN   WO9525740-A1.
      XX
      PD   28-SEP-1995.
      XX
      PF   22-MAR-1995;   95WO-US003657.
      XX
      PR   24-MAR-1994;   94US-00217186.
      PR   17-JUN-1994;   94US-00261160.
      PR   15-AUG-1994;   94US-00290381.
      XX
      PA   (LUDW-) LUDWIG INST CANCER RES.
      PA   (UYOX-) UNIV OXFORD.
      PA   (UYLE-) RIJKSUNIV LEIDEN.
      XX
      PI   Townsend A,  Bastin J,  Boon-Falleur T,  Van Der Bruggen P,
Coulie P;
      PI   Gajewski T,  Melief CJ,  Visseren MW,  Kast WM;
      XX
      DR   WPI; 1995-344584/44.
      XX
```

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      PT   Isolated peptide(s) which complex with HLA-A2 - used as immunogens
for
      PT   the prodn. of antibodies, or as targets for the generation of
cytolytic T
      PT   cell clones.
      XX
      PS   Claim 15; Page 23; 44pp; English.
      XX
      CC   The peptides given in AAR79845-47 represent tumour rejection
antigens
      CC   derived from MAGE tumour rejection precursor. These peptides form
a
      CC   strong complex with HLA-2 which may be used diagnostically and as
an
      CC   immunogen in the production of antibodies. They may also be used
as
      CC   targets for the generation of cytolytic T cell clones. This
cytolytic T
      CC   cell clone is used to treat a cancerous condition characterised by
the
      CC   fact that the cancer cells present the HLA-2/ peptide complex on
their
      CC   surface
      XX
      SQ   Sequence 9 AA;

        Query Match             100.0%;  Score 47;  DB 2;  Length 9;
        Best Local Similarity   100.0%;  Pred. No. 2e+06;
        Matches    9;  Conservative    0;  Mismatches    0;  Indels    0;
Gaps    0;

      Qy          1 FLLFKYQMK 9
                    |||||||||
      Db          1 FLLFKYQMK 9
```

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MINH-TAM DAVIS whose telephone number is 571-272-0830. The examiner can normally be reached on 9:00 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, SHANON FOLEY can be reached on 571-272-0898. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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MINH TAM DAVIS
May 19, 2007

/Larry R. Helms/
Supervisory Patent Examiner